

Appendix 3A

Example of Mapping Keys to Life Form and Dominance Types

Example Mapping Keys To Life Form and Dominance Types in the Pacific Southwest Region

FIELD KEY TO CALVEG DOMINANCE TYPES IN ZONE 1 - NORTH COAST AND MONTANE

CALVEG KEY FOR NORTH COAST AND MONTANE ECOLOGICAL PROVINCE (CALVEG ZONE 1) USED IN TYPE IDENTIFICATION, MAPPING, AND ACCURACY ASSESSMENT OF MAP PRODUCTS

I. Key to Lifeforms

- 1A. If total vegetation plot cover \geq 10% in conifers ...2
- 1B. If total vegetation plot cover < 10% in conifers ... 3

- 2A. If total vegetation plot cover \geq 15% in hardwoods ... **mixed lifeform** and go to **II Key to Conifers** for the conifer component and **III Key to Hardwoods** for the hardwood component.
- 2B. If total vegetation plot cover < 15% in hardwoods **conifer lifeform** and go to **II Key to Conifers**

- 3A. If total vegetation plot cover \geq 10% in hardwoods **hardwood lifeform** and go to **III Key to Hardwoods**
- 3B. If total vegetation plot cover <10% in hardwoods ...4

- 4A. If total vegetation plot cover \geq 10% in shrubs ...**shrub lifeform** and go to **IV Key to Chaparrals, Shrubs and Subshrubs**
- 4B. If total vegetation plot cover < 10% in shrubs ... 5

- 5A. If total vegetation plot cover \geq 10% in other vegetation ... **herbaceous lifeform** and go to **V Key to Grasses and Forbs**
- 5B. If total plot cover < 10% in other vegetation ... **non-vegetated** and go to **VI Key to Non-Vegetated Types**

II. Key to Conifers

cc = conifer canopy cover

- 1A. A single species of conifer species has \geq 50% cc ... 2
- 1B. No single conifer species has \geq 50% cc ... 40

- 2A. One **Cypress** species has \geq 50% cc ... 3
- 2B. Another single conifer species has \geq 50% cc ...8

- 3A. **Sargent Cypress** has \geq 50% cc ... **MS (Sargent Cypress)**
- 3B. Not as above ... 4

- 4A. **McNab Cypress** has \geq 50% cc ... **MN (McNab Cypress)**
- 4B. Not as above ... 5

5A. **Pygmy Cypress** has $\geq 50\%$ cc ... **MY (Pygmy Cypress)**

5B. Not as above ... 6

6A. **Baker Cypress** has $\geq 50\%$ cc ... **MO (Baker Cypress)**

6B. Not as above ... 7

7A. **Monterey Cypress** has $\geq 50\%$ cc ... **MM (Monterey Cypress)**

7B. Not as above ... 47

8A. **Coastal Redwood** has $\geq 50\%$ cc ... **RW (Redwood)**

8B. Not as above ... 9

9A. **Port Orford Cedar** has $\geq 50\%$ cc ... **PO (Port Orford Cedar)**

9B. Not as above ... 10

10A. **Red Fir** has $\geq 50\%$ cc and **White Fir** present, the combination $\geq 75\%$ cc... **RF (Red Fir)**

10B. Not as above ... 11

11A. **White Fir** has $\geq 50\%$ cc and **Red Fir** present, the combination $\geq 75\%$ cc... **WF (White Fir)**

11B. Not as above ... 12

12A. **Ponderosa Pine** has $\geq 75\%$ cc (or **Ponderosa Pine** and **Jeffrey Pine** in combination has $\geq 75\%$ and **Ponderosa Pine** > **Jeffrey Pine**) and Great Basin species (**Bitterbrush, Curleaf Mountain Mahogany, Basin Sagebrush, Western Juniper, or California Juniper**) do not occur in understory ... **PP (Ponderosa Pine)**

12B. Not as above ... 13

13A. **Ponderosa Pine** has $\geq 75\%$ cc (or **Ponderosa Pine** and **Jeffrey Pine** in combination has $\geq 75\%$ cc) and Great Basin species (**Bitterbrush, Curleaf Mountain Mahogany, Basin Sagebrush, Western Juniper, or California Juniper**) occur in understory ... **EP (Eastside Pine)**

13B. Not as above ... 14

14A. **Jeffrey Pine** has $\geq 75\%$ cc (or **Ponderosa Pine** and **Jeffrey Pine** in combination has $\geq 75\%$ and **Jeffrey Pine** > **Ponderosa Pine**) and Great Basin species (**Bitterbrush, Curleaf Mountain Mahogany, Basin Sagebrush, Western Juniper, or California Juniper**) do not occur in understory ... **JP (Jeffrey Pine)**

14B. Not as above ... 15

15A. **Jeffrey Pine** has $\geq 75\%$ cc and Great Basin species (**Bitterbrush, Curleaf Mountain Mahogany, Basin Sagebrush, Western Juniper, or California Juniper**) occur in understory ... **EP (Eastside Pine)**

15B. Not as above ... 16

16A. **Pacific Douglas-Fir** has $\geq 75\%$ cc ... **DF (Pacific Douglas-Fir)**

16B. Not as above ... 17

17A. **Whitebark Pine** has $\geq 75\%$ cc ... **WB (Whitebark Pine)**

17B. Not as above ... 18

18A. **Western White Pine** has $\geq 75\%$ cc ... **WW (Western White Pine)**

18B. Not as above ... 19

19A. **Foxtail Pine** has $\geq 75\%$ cc ... **FP (Foxtail Pine)**

19B. Not as above ... 20

20A. **Mountain Hemlock** has $\geq 75\%$ cc ... **MH (Mountain Hemlock)**

20B. Not as above ... 21

21A. **Knobcone Pine** has $\geq 75\%$ cc ... **KP (Knobcone Pine)**

21B. Not as above ... 22

22A. **Western Juniper** has $\geq 75\%$ cc ... **WJ (Western Juniper)**

22B. Not as above ... 23

23A. **Gray Pine** has $\geq 75\%$... **PD (Gray Pine)**

23B. Not as above ... 24

24A. **Lodgepole Pine** has $\geq 75\%$ cc ... **LP (Lodgepole Pine)**

24B. Not as above ... 25

25A. **Engelmann Spruce** has $\geq 75\%$ cc ... **EA (Engelmann Spruce)**

25B. Not as above ... 26

26A. **Brewer Spruce** has $\geq 75\%$ cc ... **PB (Brewer Spruce)**

26B. Not as above ... 27

27A. **Grand Fir** has $\geq 75\%$ cc ... **GF (Grand Fir)**

27B. Not as above ... 28

28A. **Bishop Pine** has $\geq 75\%$ cc ... **PM (Bishop Pine)**

28B. Not as above ... 29

29A. **Monterey Pine** has $\geq 75\%$ cc ... **PR (Monterey Pine)**

29B. Not as above ... 30

30A. **Beach Pine** has $\geq 75\%$ cc ... **PS (Beach Pine)**

30B. Not as above ... 31

31A. **Sitka Spruce** has $\geq 75\%$ cc ... **SK (Sitka Spruce)**

31B. Not as above ... 32

REM: This starts the ≥ 50 and $< 75\%$ two-conifer species groups

32A. **Douglas-Fir** has $> 50\%$ cc; **Redwood** is present ... **RD (Redwood - Douglas-Fir)**

32B. Not as above ... 33

33A. **Douglas-Fir** has $\geq 50\%$ cc; **Ponderosa Pine** has $\geq 20\%$ cc... **DP (Douglas-Fir - Ponderosa Pine)**

33B. Not as above ... 34

34A. **Douglas-Fir** has $\geq 50\%$ cc; **White Fir** has $\geq 20\%$ cc... **DW (Douglas-Fir - White Fir)**

34B. Not as above ... 35

35A. **Douglas-Fir** has $\geq 50\%$ cc; **Grand Fir** has $\geq 20\%$ cc ... **DG (Douglas-fir - Grand Fir)**

35B. Not as above ... 36

37A. **Ponderosa Pine** has $\geq 50\%$ cc; **White Fir** has $\geq 20\%$ cc...**PW (Ponderosa Pine - White Fir)**

37B. Not as above ... 38

38A. **Sitka Spruce** has $\geq 50\%$ cc; **Redwood** has $\geq 20\%$ cc ... **SR (Sitka Spruce - Redwood)**

38B. Not as above ... 39

39A. **Sitka Spruce** has $\geq 50\%$ cc; **Grand Fir** has $\geq 20\%$ cc ... **SG Sitka Spruce - Grand Fir)**

39B. Not as above ... 40

REM: this starts condition in which no single conifer species $\geq 50\%$ cc

40A. **Red Fir** in combination with **White Fir** $\geq 75\%$ cc and **Red Fir** > **White Fir** ... **RF (Red Fir)**

40B. Not as above ... 41

41A. **White Fir** in combination with **Red Fir** > 75% cc and **White Fir** > **Red Fir** ... **WF (White Fir)**

41B. Not as above ... 42

42A. Any of these species in combination are present but do not dominate the cc: **Mountain Hemlock, Foxtail Pine, Western White Pine, Whitebark Pine** ... **SA (Subalpine Conifers)**

42B. Not as above ... 43

43A. Any of these species in combination are present but do not dominate the cc: **Noble Fir, Alaska Cedar, Engelmann Spruce, Brewer Spruce, Port Orford Cedar, Pacific Yew** ... **MK (Klamath Mixed Conifer)**

43B. Not as above ... 44

44A. **Ponderosa Pine** and/or **Sugar Pine** in combination $\geq 10\%$ cc ... **MP (Mixed Conifer - Pine)**

44B. Not as above ... 45

45A. **White Fir** and **Red Fir** combined have $\geq 20\%$ cc ... **MF (Mixed Conifer - Fir)**

45B. Not as above .. 46

46A. Any of these species in combination are present but do not dominate the cc: **Jeffrey Pine, Lodgepole pine, McNab Cypress, Sargent Cypress, Gray Pine or Western White Pine** and elevation is under 5000 ft (1525 m).. **MU (Ultramafic Mixed Conifer)**

46B. Not as above...47

47. Conifer type not determined ... **UC**

III. Key to Hardwoods

hc = hardwood canopy cover

- 1A. One hardwood species (or genus) has $\geq 50\%$ hc ... 2
 1B. No single hardwood species (or genus) has $\geq 50\%$ hc ... 23
- 2A. **Tanoak** has $\geq 50\%$ hc... **QT (Tanoak [Madrone])**
 2B. Otherwise ... 3
- 3A. **Madrone** has $\geq 50\%$ hc... **QH (Madrone)**
 3B. Otherwise ... 4
- 4A. **Willow** has $\geq 50\%$ hc... **QO (Willow)**
 4B. Otherwise ... 5
- 5A. **Red Alder** has $\geq 50\%$ hc... **QR (Red Alder)**
 5B. Otherwise ... 6
- 6A. **White Alder** has $\geq 50\%$ hc... **QE (White Alder)**
 6B. Otherwise ... 7
- 7A. **Mountain Alder** has $\geq 50\%$ hc... **TA (Mountain Alder)**
 7B. Otherwise ... 8
- 8A. **Black Cottonwood** has $\geq 50\%$ hc... **QX (Black Cottonwood)**
 8B. Otherwise ... 9
- 9A. **Fremont Cottonwood** has $\geq 50\%$ hc... **QF (Fremont Cottonwood)**
 9B. Otherwise ... 10
- 10A. **Quaking Aspen** has $\geq 50\%$ hc... **QQ (Aspen)**
 10B. Otherwise ... 11
- 11A. **Bigleaf Maple** has $\geq 50\%$ hc... **QM (Bigleaf Maple)**
 11B. Otherwise ... 12
- 12A. **Tree Chinquapin** has $\geq 50\%$ hc... **TC (Tree Chinquapin)**
 12B. Not as above ... 13
- 13A. **Black Oak** has $\geq 50\%$ hc... **QK (Black Oak)**
 13B. Not as above ... 14
- 14A. **Oregon White Oak** has $\geq 50\%$ hc... **QG (Oregon White Oak)**
 14B. Not as above ... 15
- 15A. **Blue Oak** has the greatest hardwood cover... **QD (Blue Oak)**
 15B. Not as above ... 16
- 16A. **Coast Live Oak** has $\geq 50\%$ hc... **QA (Coast Live Oak)**
 16B. Not as above ... 17
- 17A. **Canyon Live Oak** has $\geq 50\%$ hc... **QC (Canyon Live Oak)**
 17B. Not as above ... 18

18A. **Interior Live Oak** has $\geq 50\%$ hc... **QW (Interior Live Oak)**

18B. Not as above ... 19

19A. **Valley Oak** has $\geq 50\%$ hc... **QL (Valley Oak)**

19B. Not as above ... 20

20A. **California Bay** has $\geq 50\%$ hc... **QB (California Bay)**

20B. Not as above ... 21

21A. **Eucalyptus** of any species has $\geq 50\%$ hc... **QZ (Eucalyptus)**

21B. Not as above ... 22

22A. **California Buckeye** has $\geq 50\%$ hc ... **QI (California Buckeye)**

22B. Not as above ... **Unknown Hardwood Type ... HD**

REM: this begins the mixed hardwoods groups; no single species $\geq 50\%$ hc

23A. Combination of **Tanoak** and **Madrone** has $\geq 50\%$ hc... **QT (Tanoak [Madrone])**

23B. Otherwise ... 24

24A. **Black** or **Fremont Cottonwood** and any species of **Alder (Red, White, Sitka, or Mountain)** in combination have $\geq 50\%$ hc ... **QJ (Cottonwood - Alder)**

24B. Otherwise ... 25

25A. **Willow** of any species and **Aspen** in combination have $\geq 50\%$ hc.. **QS (Willow - Aspen)**

25B. Otherwise ... 26

26A. **Willow** of any species and **Alder (Red, White, Sitka, or Mountain)** in combination have $\geq 50\%$ hc ... **QY (Willow - Alder)**

26B. Otherwise ... 27

27A. Otherwise a mixture of hardwoods, including **Valley Oak, California Bay, Canyon, Coast and Interior Live Oaks, California Black and Oregon White Oak, Blue Oak, Madrone, and California Buckeye...** **NX (Mixed Hardwoods)**

27B. Otherwise ... **Unknown Hardwood Type ... HD**

IV. Key to Shrubs

sc = shrub canopy cover

1A. **Pygmy (Ft. Bragg) Manzanita** has $\geq 10\%$ sc ... **AN (Pygmy [Ft. Bragg]Manzanita)**

1B. Not as above ... 2

2A. Either **Salal** or **California Huckleberry** have $\geq 50\%$ sc... **CB (Salal - California Huckleberry)**

2B. Not as above ... 3

3A. **Curlleaf Mountain Mahogany** has $\geq 50\%$ sc ... **BM (Curlleaf Mountain Mahogany)**

3B. Otherwise ... 4

4A. **Basin Sagebrush** as $\geq 50\%$ sc ... **BS (Basin Sagebrush)**

4B. Not as above ... 5

5A. **Bitterbrush** has $\geq 50\%$ sc ... **BB (Bitterbrush)**

5B. Not as above ... 6

6A. **Low Sagebrush** as $\geq 50\%$ sc ... **BL (Low Sagebrush)**

6B. Not as above ... 7

7A. Any species of **Rabbitbrush** alone or in combination has $\geq 50\%$ sc ... **BR (Rabbitbrush)**

7B. Not as above ... 8

7A. **Chamise** has $\geq 50\%$ sc ... **CA (Chamise)**

7B. Not as above ... 8

8A. **Whiteleaf Manzanita** has $\geq 75\%$ sc ... **CW (Whiteleaf Manzanita)**

8B. Not as above ... 9

9A. **Greenleaf Manzanita** has $\geq 75\%$ sc ... **CG (Greenleaf Manzanita)**

9B. Not as above ... 10

10A. **Pinemat Manzanita** has $\geq 75\%$ sc ... **CN (Pinemat Manzanita)**

10B. Not as above ... 11

11A. **Manzanita** of any other species alone or in combination with or without Whiteleaf or Greenleaf Manzanita $\geq 75\%$ sc ... **SD (Manzanita)**

11B. Not as above ... 12

12A. **Huckleberry Oak** has $\geq 75\%$ sc ... **CH (Huckleberry Oak)**

12B. Not as above ... 13

13A. **Brewer Oak** has $\geq 75\%$ sc ... **CJ (Brewer Oak)**

13B. Not as above ... 14

14A. **Wedgeleaf Ceanothus** has $\geq 75\%$ sc ... **CL (Wedgeleaf Ceanothus)**

14B. Not as above ... 15

15A. **Blueblossom Ceanothus** has $\geq 75\%$ sc ... **SC (Blueblossom Ceanothus)**

15B. Not as above ... 16

16A. **Snowbrush** has $\geq 75\%$ sc ... **CV (Snowbrush)**

16B. Not as above ... 17

17A. **Coyote Brush** has $\geq 75\%$ sc ... **CK (Coyote Brush)**

17B. Not as above ... 18

REM: mixed species:

18A. Any other combination of **Ceanothus**, including non-dominant **Wedgeleaf**, **Deerbrush**, **Blueblossom** or **Snowbrush** has $\geq 75\%$ sc ... **CC (Ceanothus Chaparral)**

18B. Not as above ... 19

19A. **Salal** and **California Huckleberry** in combination has $\geq 75\%$ sc... **CB (Salal - California Huckleberry)**

19B. Not as above ... 20

20A. Any other species of scrubby oaks alone or in combination of the following have $\geq 75\%$ sc: **Scrub Oak, Shrub Interior Live Oak, Shrub Canyon Live Oak, Leather Oak, Sadler Oak, Huckleberry Oak, Oregon White or Brewer Oak, California Black Oak ... CS (Scrub Oak)**

20B. Not as above ... 21

21A. Any of following species present and in combination have $\geq 10\%$ sc: **Blueblossom Ceanothus, Coastal Whitethorn, Hairy Manzanita, Shrub California Bay, Salal, California Huckleberry, Wax Myrtle, Yellow Bush Lupine, any species of Rhododendron, Red Huckleberry, Thimbleberry ... NC (North Coastal Scrub)**

21B. Not as above ... 22

22A. Any of the following in combination have $\geq 10\%$ sc: **Chamise, Wedgeleaf Ceanothus, Lemmon Ceanothus, Whiteleaf Manzanita, Common Manzanita, Stanford Manzanita, Birchleaf Mountain Mahogany, Toyon, Pine Mat Ceanothus, Hollyleaf Redberry ... CQ (Lower Montane Mixed Chaparral)**

22B. Not as above ... 23

23A. Any of the following in combination of two or more have $\geq 10\%$ sc: **Greenleaf Manzanita, Hoary Manzanita, Mountain Whitethorn, Deerbrush, Cascara, Shrub Canyon Live Oak, Bush Chinquapin, Fremont Silktassel, any species of Snowberry, Mahala Mat ... CX (Upper Montane Mixed Chaparral)**

23B. Not as above ... 24

24A. Elevation < 5000 ft (1525 m); any of the following in combination have $\geq 10\%$ sc: **Jepson Ceanothus, Shrub Tanoak, Creeping Barberry, Dwarf Barberry, Piper's Oregongrape, Wavyleaf Ceanothus, Huckleberry Oak, Whiteleaf Manzanita, Interior Silktassel, Siskiyou Mat, Leather Oak ... C1 (Ultramafic Mixed Chaparral)**

24B. Not as above ... 25

25A. Elevation ≥ 5000 ft (1525 m); any of following alone or in combination have $\geq 10\%$ sc: **Bush Chinquapin, Shrub Tanoak, Mountain Whitethorn, Pinemat Manzanita, Huckleberry Oak, Bitter Cherry ... CM (Upper Montane Mixed Shrub)**

25B. Not as above ... 26

26. **Unknown Shrub Type ... US**

V Key to Herbaceous

hg = herbaceous/grass canopy cover

1A. Annual grasses mixed with annual and/or perennial forbs have $\geq 50\%$ hg ... **HG (Annual Grass - Forb)**

1B. Not as above ... 2

2A. Hydrophytic grasses and grass-like species (sedges, rushes, bulrushes) in mixture with hydrophytic herbaceous species (false hellebore, lily, shooting star, gentian, etc.) growing mainly in organic soil have $\geq 50\%$ hg ... **HJ (Wet Meadows)**

2B. Not as above ... 3

3A. Pastures or semi-natural areas containing mixtures of annual and perennial grasses and annual and/or perennial forbs have $\geq 50\%$ hg ... **HM (Perennial Grass - Forb)**

3B. Not as above ...4

4A. Coastal brackish or salt marshes surrounding open water containing mixtures of Common Pickleweed, Cordgrasses or Saltgrass $\geq 50\%$ hg ...**HC (Pickleweed - Cordgrass)**

4B. Not as above ...5

5A. Marshes adjacent to perennial fresh water sources containing mixtures of Tule or other Bulrushes and Cattails rooting below the water's surface have $\geq 50\%$ hg ...**HT (Tule - Cattail)**

5B. Unknown herbaceous or grassland type ...**Grass-GR**

VI Key to Non-Vegetated

nvc = non-vegetated cover

1A. Agricultural uses comprise $\geq 50\%$ nvc ...**AG (Agriculture)**

1B. Not as above ...2

2A. Coastal dunes comprise $\geq 50\%$ nvc ...**DU (Dunes)**

2B. Not as above ...3

3A. Snow or ice fields at the highest elevations comprise $\geq 50\%$ nvc ...**SN (Snow/Ice)**

3B. Not as above ...4

4A. Urban or otherwise developed landscapes (highways, etc.) $\geq 50\%$ nvc ...**UB (Urban or Developed)**

4B. Not as above ...5

5A. Open water or confined water courses occupy $\geq 50\%$ nvc ... **WA (Water)**

5B. Not as above ...6

6A. Otherwise naturally barren landscapes (cliffs, bedrock, etc.) occupy $\geq 50\%$ nvc ...**BA (Barren)**

6B. Unknown type ...**NF (Non-Forested)**